What is claimed is:

1. A medical device, comprising:

a housing; and

a nanoactuator operatively associated with the housing.

2. The medical device of claim 1, wherein the nanoactuator comprises a first electrode, a separator operatively associated with the first electrode and a second electrode, the second electrode comprising nanopaper, and an electrolyte operatively associated with the separator and first and second electrodes.

3. The medical device of claim 2, wherein the nanopaper comprises carbon nanotubes.

4. The medical device of claim 2, wherein the separator comprises a porous membrane.

5. The medical device of claim 2, wherein the separator comprises a proton exchange membrane (PEM).

6. The medical device of claim 5, wherein the PEM is selected from the group consisting of a perfluorosulfonate ionomer and a sulfonated poly(styrene-isobutylene-styrene).

7. The medical device of claim 2, wherein the electrolyte comprises a chloride ion.

8. The medical device of claim 2, further comprising a first conductor associated with the first electrode, and a second conductor associated with the second electrode, the first and second conductors being operatively associated with a power source.

9. The medical device of claim 2, wherein a second nanoactuator is operatively associated with the first actuator, the first and second actuators being partitioned by an insulator or an intervening separator.

10. The medical device of claim 9, wherein the first actuator may be activated independent of the second actuator, and vice versa.

11. The medical device of claim 2, wherein the actuator is operatively associated with an exterior surface of the housing.

12. The medical device of claim 11, wherein there are a plurality of actuators operatively associated with the exterior of the housing.

13. The medical device of claim 12, wherein the individual actuators are operatively associated with one another.

14. The medical device of claim 12, wherein each actuator may be activated independently of the other.

15. The medical device of claim 11, wherein a sheath surrounds and is operatively associated with actuators.

16. The medical device of claim 15, wherein a conductor is provided on an interior surface of the sheath.

17. The medical device of claim 2, wherein the actuator is located within an interior of the housing.

18. The medical device of claim 17, wherein the actuator is operatively associated with an inner tube.

19. The medical device of claim 2, wherein the nanopaper includes at least one radial slit.

20. The medical device of claim 2, wherein the nanoactuator is operatively associated with the housing so as to provide a clamp.

21. The medical device of claim 20, wherein the housing is in the form of sheath with an open end and an inner surface and inner perimeter, the nanoactuator operatively associated with the inner surface.

22. The medical device of claim 21, wherein the actuator extends about the inner perimeter.

23. The medical device of claim 21, wherein there are a plurality of actuators positioned about the inner perimeter.

24. The medical device of claim 20, wherein the housing comprises an outer surface and outer perimeter, the nanoactuator operatively associated with the outer surface.

25. The medical device of claim 24, wherein the actuator extends about the outer perimeter.

26. The medical device of claim 24, wherein there are a plurality of actuators positioned about the outer perimeter.

27. The medical device of claim 20, wherein the actuator has an outer surface compatible with a second medical device to be gripped by the clamp.

28. The medical device of claim 2, wherein the second medical device is selected from the group consisting of a stent, valve, distal protection device, aneurism coil, drug deposit, and vena cava filter.

29. A method of using a medical device, comprising:

positioning in a body lumen the medical device comprising a housing; and

activating a nanoactuator operatively associated with the housing.

30. The method of claim 29, the activating step comprises applying voltage causing microbubbles to form and expand nanopaper within the nanoactuator.

31. The method of claim 30, wherein the method further comprises the step of deactivating the nanoactuator.

32. The method of claim 30, wherein the medical device is a balloon catheter comprising a balloon.

33. The method of claim 32, further comprising the step of hydraulically expanding the balloon.

34. The method of claim 33, wherein the hydraulic expansion step is performed before activating the nanoactuator.

35. The method of claim 33, wherein the hydraulic expansion step is performed after activating the nanoactuator.

36. The method of claim 32, wherein the nanoactuator is operatively associated with a distal end of the balloon, a second actuator is associated with a center portion of the balloon, and a third actuator is associated with a proximal end of the balloon, the method further comprising activating the second actuator after activation of the first actuator, and activating of the third actuator after activation of the second.

37. A method of delivering a medical device, the method comprising:

aligning first and second medical devices relative to one another to prepare the second device to be gripped by the first medical device;

activating a nanoactuator operatively associated with a housing of the first medical device, and further having an actuator surface, so that the first medical device grips the second medical device with the actuator surface contacting a surface of the second medical device; and

positioning the second medical device in a desired location within a body lumen.

38. The method of claim 37, further comprising deactivating the nanoactuator.

39. The method of claim 38, further comprising removing the first medical device.

40. The method of claim 37, wherein the second medical device is selected from the group consisting of a stent, valve, distal protection device, aneurism coil, drug deposit, and vena cava filter.

41. The method of claim 37, wherein the nanoactuator is located on the second medical device.

42. The method of claim 37, wherein the step of removing the first and second medical device from the body lumen is performed instead of the positioning step.

43. A medical device, comprising:

a housing with a proximal end and a distal end;

a nanoactuator operatively associated with the housing; and

a blade operatively associated with the housing.

44. The medical device of claim 43, wherein the blade is operatively associated with the nanoactuator.

45. The medical device of claim 43, further comprising a covering operatively associated with the blade, the covering positioned so that the blade is enveloped by the covering when the nanoactuator is not activated, and allowing for at least a portion of the blade to emerge from the covering when the actuator is activated.

46. The medical device of claim 45, wherein the covering further comprises a pharmaceutical.

47. The medical device of claim 46, wherein the covering further comprises a pharmaceutically acceptable diluent, adjuvant, excipient, carrier, or mixture thereof.

48. The medical device of claim 45, wherein the medical device is a balloon catheter.

49. The medical device of claim 45, wherein the actuator is associated with an exterior surface of the housing.

50. The medical device of claim 45, wherein the actuator is associated with an interior of the housing.

51. The medical device of claim 45, wherein the blade comprises a material selected from the group consisting of steel and diamond.

52. The medical device of claim 45, wherein there are a plurality of blades.

53. The medical device of claim 52, wherein the blades are arranged in a line.

54. The medical device of claim 52, wherein the blades are positioned about a perimeter of the medical device at an angular separation selected from the group consisting of about 15, 30, 45, 60, 90, 120, and 180 degrees.

55. A method of employing a medical device comprising a housing, a nanoactuator, and blade, the actuator and blade operatively associated with the housing, the method comprising:

positioning the blade in an area to be cut;

activating the actuator; and

cutting with the blade.

56. The method of claim 55, wherein the medical device further comprises a covering, the blade enveloped in a covering when the actuator is not activated, the method comprising, wherein the activating step comprises at least a portion of the blade emerging from the covering,

57. The method of claim 56, wherein the method further comprises deactivating the actuator so that the blade is again enveloped by the covering.

58. The method of claim 56, wherein the blade is positioned in a stenosis.

59. The method of claim 56, wherein the cutting step comprises rotating the medical device about an axis of the medical device.

60. A balloon catheter, comprising:

a housing comprising a balloon with a proximal end and a distal end;

a guide wire operatively associated with the housing; and

a nanoactuator operatively associated with the housing, the actuator operatively associated with the distal end of the balloon or a portion of the guidewire adjacent to the distal end of the balloon.

61. A method of advancing a medical device comprising a nanoactuator, the method comprising:

navigating all or part of the actuator into a stenosis;

activating the actuator, the expansion thereof causing the stenosis to open at least partially; and

deactivating the actuator.

62. The method of claim 61, wherein the medical device comprises a balloon catheter comprising a balloon with a proximal end and a distal end, a guide wire operatively associated with the balloon, and a nanoactuator operatively associated with the balloon, the actuator operatively associated with the distal end of the balloon or a portion of the guidewire immediately adjacent to the distal end of the balloon.

63. The method of claim 62, further comprising the step of advancing all or part of the balloon into the stenosis.

64. The method of claim 63, wherein the method is repeated by activating the actuator again, deactivating the actuator and further advancing the balloon into the stenosis.

65. The method of claim 63, wherein the method further comprises the step of inflating the balloon.

66. The method of claim 65, wherein the balloon is inflated after it has completely advanced into the stenosis so that the balloon is either enclosed within an interior of the stenosis or at least the distal end of the balloon has advanced through and out of the stenosis.

67. A medical device, comprising:

a housing;

a nanoactuator operatively associated with the housing;

a hook operatively associated with the housing and the nanoactuator, the hook having a proximal end and a distal end, the distal end shifted toward the housing when in a retracted position and away from the housing when in a protracted position.

68. The medical device of claim 67, wherein the medical device is selected from the group consisting of a stent, valve, distal protection device, aneurism coil, drug deposit, and vena cava filter.

69. The medical device of claim 67, wherein the medical device comprises a delivery device for positioning a second medical device.

70. A method of attaching a medical device to a lining of a body lumen, the method comprising:

positioning the medical device at a desired position for attachment; and

activating a nanoactuator operatively associated with a housing and hook of the medical device.

71. The method of claim 70, wherein the method further comprises deactivating the nanoactuator, and removing or repositioning the medical device.

72. The method of claim 70, wherein the method further comprises detaching the conductors from the actuator, the conductors having supplied the power to activate the actuator.

73. The method of claim 72, wherein the method further comprises reattaching the conductors to the actuator, deactivating the actuator and removing or repositioning the medical device.

74. A method of using a first medical device to position a second medical device, the method comprising:

aligning a hook of the first medical device with a receptacle of the second medical device;

activating a nanoactuator operatively associated with the hook of the first medical device;

engaging the hook with the receptacle; and

positioning the second medical device at a desired location within a body lumen.

75. The method of claim 74, further comprising disengaging the hook from the receptacle, deactivating the nanoactuator, and removing the first medical device.

76. The method of claim 74, further comprising deactivating the nanoactuator so that a surface of the hook is operatively associated with a surface of the second medical device.

77. The method of claim 74, wherein the second medical device is selected from the group consisting of a stent, valve, distal protection device, aneurism coil, drug deposit, and vena cava filter.

78. The method of claim 74, wherein the hook and nanoactuator are operatively associated with the second medical device and the receptacle is operatively associated with the first medical device.

79. A medical device comprising a nanoactuator, and designed to procure tissue samples for a biopsy.

80. A method of procuring a tissue sample for a biopsy using a medical device comprising a nanoactuator, the method comprising:

positioning the medical device at a location where a tissue sample is to be extracted; and

activating the nanoactuator to bring a first and second surface of the medical device together with the tissue sample situated between the first and second surfaces.

81. The method of claim 80, further comprising extracting the tissue sample from the location.

82. The method of claim 80, further comprising removing the medical device from the location.

83. The method of claim 80, further comprising analyzing the tissue sample.